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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,501	01/22/2002	Rebecca Klotzer	3568.075	8934
152	7590	03/04/2004	EXAMINER	
CHERNOFF, VILHAUER, MCCLUNG & STENZEL 1600 ODS TOWER 601 SW SECOND AVENUE PORTLAND, OR 97204-3157			BISSETT, MELANIE D	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,501

Applicant(s)

KLOTZER, REBECCA

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 and 18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 6-11 and 18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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DETAILED ACTION

Priority

1. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:
2. This application is claiming the benefit of a prior filed nonprovisional application under 35 U.S.C. 120, 121, or 365(c). Copendency between the current application and the prior application is required. However, copendency has not been achieved. In order for copendency to be achieved, the filing date of the parent application, 09/642,390, must be within 30 months of the filing of the parent application, DE 19803362.1. The parent US case, 09/642,390, was filed 18 August 2000, 30 months and 20 days after the filing of the foreign reference. Since the filing date of 09/642,390 is more than 30 months past the priority date, PCT/EP99/00286 was abandoned before the filing of the US case and copendency was not achieved.
3. Because the effective filing date for the present application is 18 August 2000, the foreign document is available as prior art under 35 USC 102(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 6-11 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

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which applicant regards as the invention. Note: Presented claim 21, added 22 January 2002, has been renumbered as claim 18 based on Rule 1.126.

6. Claim 6 recites the limitation "said second mixing stage" in line 4 of p. 16. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 6-11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Klotzer (DE 19803361.1).

9. Klotzer teaches the claimed improvement in a method of making a foamed porous membrane, where two fluids are charged into the polymer melt and forced via melt pump through an extruder die (see claims, figure). The claimed temperature, pressure, polymer, and blowing agent limitations are also taught.

10. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Welsh et al.

11. Welsh teaches an improved polystyrene foam made using carbon dioxide and water as blowing agents (abstract). Liquid carbon dioxide is the preferred carbon dioxide fluid (col. 3 lines 32-35). A typical tandem extrusion process is used (col. 3 lines 52-58), where a polymer melt is mixed with the blowing agent, sent to a second extruder

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for additional mixing and for cooling, and transferred through an exit die to form a foam structure (col. 2 lines 3-19). Thin foam sheets are formed by extruding the polymer melt into atmospheric temperature and pressure (col. 4 lines 22-34). Because the thin foam sheets are pervious to air, it is the examiner's position that the reference teaches the formation of porous membranes. Although the reference does not specifically teach the use of a melt pump in the tandem extrusion apparatus between the second extruder and the extrusion die, it is the examiner's position that the melt pump would not affect the formed foam product. Thus, a foam made without the melt pump would have the same material features as that made with a melt pump. Note that claim 18 is written in product-by-process format. Only method steps providing material differences in the end product are given patentable weight.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 6-7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welsh et al. in view of Park et al.

14. Welsh applies as above, teaching the use of a tandem extrusion method but failing to teach the improvement comprising the use of a melt pump with the extrusion die. Note also that the use of the Jepson format concedes the conventionality of all

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limitations preceding the phrase "the improvement comprising". Park teaches a tandem extrusion method for foaming a thermoplastic, where the method comprises injecting a physical blowing agent into a polymer melt, transferring the mixture to a second extruder, mixing and cooling the melt, and extruding the mixture to form a continuous flat foam sheet (col. 4 lines 42-56). A melt pump is used to facilitate the transfer of polymer melt through the heated extrusion die (col. 7 line 63-col. 8 line 24). Thus, it is the examiner's position that it would have been prima facie obvious to include a melt pump before the extrusion die in the extrusion process of Welsh's invention to aid in transferring the material through the extrusion die.

15. Regarding the temperature limitations, Welsh only mentions the preferred extruder die temperature. The reference does not teach a specific cooling temperature. Park teaches extrusion systems, where the melt is heated in zones 1-5 to a melt temperature of 372 °F (189 °C) and gradually cooled to a melt temperature of 283 °F (139 °C) before being pumped through the die (example 1). The initial high temperatures are not necessary once the blowing agents have been introduced, since the blowing agents act as plasticizers (col. 10 lines 30-40). Thus, from Park's teaching, it is the examiner's position that it would have been prima facie obvious to reduce the temperature in the second extruder by any amount necessary to optimize the processing of the melt and the cost of heating.

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16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welsh et al. in view of Park et al. ('579) as applied to claims 6-7 and 9-10 above, and further in view of Hammel et al.

17. Welsh and Park apply as above for the process of introducing two blowing agent fluids into a polymer melt and using a melt pump to aid foaming through the die.

However, the references do not teach increasing the pressure in the second extruder greater than 150 bar. Hammel teaches a tandem extrusion process for polyolefins and polystyrene materials, where the polymer melt is heated under pressures of at least 600 psig, cooled under the same pressure, and extruded into atmospheric pressure (col. 13 lines 9-16). Figures 3-6 show that higher pressures result in improved dissolution of different blowing agents in the resin. This is true for a range of temperatures. The highest dissolution results are found at pressures of 3000 psig (~207 bar). Thus, it is the examiner's position that it would have been prima facie obvious to elevate the pressure in the second extruder to any pressure necessary to optimize the dissolution of the blowing agents in the polymer melt.

18. Claims 6-7, 10-11, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. ('579) in view of Park et al. ('742).

19. Park et al. ('579) applies as above for the method of incorporating a blowing agent into a polypropylene melt resin and extrusion foaming the melt. The reference teaches physical blowing agents including carbon dioxide gas but does not specify a mixture of such blowing agents (col. 10 lines 41-53). Park ('742) teaches a

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polypropylene foaming method, where blowing agents are mixed with a polypropylene melt, cooled to optimize physical characteristics of a foam product, and extruded through a die to form a continuous foam (col. 4 lines 40-64). In this reference, carbon dioxide and carbon dioxide/water mixtures are preferred blowing agents (col. 3 lines 7-48). It is noted that both carbon dioxide and water are free of organic volatile agents and permeate the polymer melt quickly (col. 3 lines 55-64). Thus, it is the examiner's position that it would have been prima facie obvious to use the carbon dioxide/water blowing agent mixture of Park's ('742) invention in Park's ('579) foaming method to achieve equivalent improvements in foam appearance and structure without adding volatile organic materials.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. ('579) in view of Park ('742) as applied to claims 6-7, 10-11, and 18 above, and further in view of Hammel et al.

21. The Park references apply as above for the process of introducing two blowing agent fluids into a polymer melt and using a melt pump to aid foaming through the die. However, the references do not teach increasing the pressure in the second extruder greater than 150 bar. Hammel teaches a tandem extrusion process for polyolefins and polystyrene materials, where the polymer melt is heated under pressures of at least 600 psig, cooled under the same pressure, and extruded into atmospheric pressure (col. 13 lines 9-16). Figures 3-6 show that higher pressures result in improved dissolution of different blowing agents in the resin. This is true for a range of temperatures. The

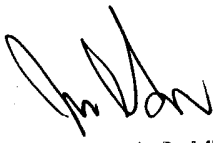
highest dissolution results are found at pressures of 3000 psig (~207 bar). Thus, it is the examiner's position that it would have been prima facie obvious to elevate the pressure in the second extruder to any pressure necessary to optimize the dissolution of the blowing agents in the polymer melt.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdb


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